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EXAMINER	
WONG, XAVIER S	

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2416	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/630,494	KUMAR, SAURABH	
	Examiner	Art Unit	
	Xavier Szewai Wong	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6th November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31,33 and 34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims **1-34** are pending

This is a non-final action

Response to Arguments

Applicant's arguments with respect to claims 1, 13, 17, 20, 28, 33 and 34 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 1 is rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to particular machine, or (2) transform underlying subject matter (such as an article or material) to a different state or thing. See page 10 of In Re Bilski 88 USPQ2d 1385. The instant claims are neither positively tied to a particular machine that accomplishes the claimed method steps nor transform underlying subject matter, and therefore do not qualify as a statutory process. The method including steps of "receiving a packet," "determining if…," "processing the head fragment" and "applying said destination address" are broad enough that the claim could be completely performed mentally, verbally or without a machine nor is any transformation apparent. Claims 2-12 are objected to for similar reasons stated above.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1- 6, 9-15, 17- 22, 24-29 and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mankude et al (US 6795866 B1, Mankude) in view of Egevang (US 2003/0081605 A1) and in further view of Basso et al (US 7065086 B2, Basso).

3. Claims 1, 9, 11, 13, 15, 17, 19, 20, 28, 32, 33 and 34: Mankude shows an apparatus (e.g. switch – fig. 2 server node for multiplexing) comprising an article of manufacture comprising computer-readable medium having instructions stored thereon executable by a processor to handle packet fragments, the apparatus handles the packet fragments by:

i. an entry point and network device (fig. 2 items 221, 218 & 230) for determining if a fragment of a packet is either a head fragment or a non-head fragment (col. 7 lines 10-12);

ii. processing the fragment if it is determined to be said head fragment to determine a destination address for said head fragment (col. 7 lines 17-20), wherein the means is a packet fragment forwarding mechanism *230*;

iii. *using* the determined destination address to any corresponding non-head fragment of said packet that is received subsequently after the head fragment and to any corresponding stored non-head fragment of the packet that is received prior to the head fragment (col. 7 lines 24-31);

wherein step iii. above comprising further steps of:

iv. holder object means for generating a session associated with the head fragment (col. 7 lines 20-22: destination address *entry* initialization by a holder object; see also col. 6 lines 28-36) and holder means for obtaining the destination address from the session, and applying the determined destination address to any corresponding non-head fragment of said packet that is received subsequently after the head fragment includes *using* the destination address obtained from said session to said any corresponding non-head fragment received subsequently after the head fragment (col. 7 lines 24-31); and,

v. a storage unit (fig. 4) coupled in the network device for storing a plurality of corresponding non-head fragments if the session has not been generated (col. 6 lines 37-42: "non-first" fragments stored in queues).

Though Mankude discloses the usage of the destination address to forward non-head fragments to their destinations, the means and steps of "*applying* (e.g. *tagging*) *the determined destination address* to any corresponding stored plurality non-head fragment after the session has been generated" and "an exit point coupled to the network device to update non-head fragments" have not been *very clearly* mentioned by Mankude.

Egevang discloses a router means comprising a packet fragmentation manager (PFM) comprising a collection module receives packet fragments ([0045] lines 1-5) and then following receiving a first packet fragment (header), a translation module will translate destination address to subsequent packet fragments based on the first packet

fragment destination address and network address translation NAT process ([0047]). The translation and modifying steps may read on as *applying the determined destination address* to the non-head packet fragments. Thereafter, a communication module (exit point) applies (modifies) the destination address based on the NAT process which is determined by the first packet fragment destination address ([0048] lines 1-3 & 7-11). It would have been obvious to one of ordinary skill in the art at the time the invention was created to implement the PFM and translation modules of applying destination address to fragments as taught by Egevang to the fragment processing means to use destination address to corresponding stored fragments after the session has been generated as taught by Mankude to reduce latency for transmitting data across a network ([0001] of Egevang).

Yet, it is not very specifically mentioned of "forwarding said head fragment to said determined destination address," "non-head fragment of said packet that was stored prior to receiving said head fragment and to at least one non-head fragment of said packet that is received after said forwarding said head fragment" and "adapted to process according to at least one of layer 4 through layer 7 criteria."

Basso teaches forwarding said head fragment to said determined destination address (col. 10 lines 1-5: first fragment contains relevant content-based info – destination address – is forwarded to its destination); applying said destination address to non-head fragment of said packet that was stored prior to receiving said head fragment and to at least one non-head fragment of said packet that is received after said forwarding said head fragment (col. 11 lines 5-12: all fragments received prior to the first fragment... forwarded

to their destinations; col. 12 lines 11-20: fragments that are not the first or last fragment are stored in PCCB queue until the first fragment is received since it contains *content-based routing information – destination address* applied; col. 16 lines 43-47: destination ID applied to fragments and forwarded) and switch is adapted to process according to at least one of layer 4 through layer 7 criteria (*abstract*: layers 3-7). It would have been obvious to one of ordinary skill in the art when the invention was created to implement the steps of Basso to the fragment forwarding system of Mankude, in combination with Egevang, to avoid time-and-resource consuming storing of fragments as "fast forwarding" is applied (Basso: col. 5 line 65- col. 6 line 9).

Claim 2, applied to claim 1: Mankude teaches processing the head fragment includes generating a session pointer data structure having the destination address (fig. 4: 412, 422, 432; 416, 426, 436), the method further comprising after processing the head fragment:

i. locating said destination address from the session pointer data structure that was generated during the processing of the head fragment (col. 6 lines 37-44).

Yet, the applying of said destination address to said at least one corresponding non-head fragment includes applying the destination address located from said session *pointer* data structure to a corresponding non-head fragment subsequently received after receiving said head fragment.

Egevang discloses a router means comprising a packet fragmentation manager (PFM) comprising a collection module receives packet fragments ([0045] lines 1-5) and then following receiving a first packet fragment (header), a translation module will

translate destination address to subsequent packet fragments based on the first packet fragment destination address and network address translation NAT process ([0047]). The translation and modifying steps may read on as *applying the determined destination address* to the non-head packet fragments.

It would have been obvious to one of ordinary skill in the art at the time the invention was created to modifying the pointer of Mankude to include a step of applying a destination address to a fragment as Egevang applies a destination address to the fragments as a known option in the same field of endeavor to realize the benefit of improving efficiency in packet fragmentation and forwarding by using pointers rather than consuming ample memory (array) space.

Claim 3, applied to claim 1: Mankude mentions the packets as IP packets (col. 5 lines 57-63), therefore, the fragments are IP-fragments.

Claim 4, applied to claim 1: Mankude discloses the first (head) fragment includes all header information (col. 6 lines 6-8) from the packet, and wherein the at least one non-head fragment includes packet data from the packet (col. 6 lines 4-6).

Claim 5, applied to claim 1: Mankude discloses processing head fragment includes processing one of the fragments having the header information (col. 7 lines 10-12). Yet, Mankude may not have specifically mentioned duplicative header information from the packet wherein the step of applying (destination address) includes designating another one of the fragments having the header information as the at least one non-head fragment. Egevang discloses that each packet fragment (e.g. meaning head & non-

head fragments as well) may include a packet fragment header wherein a "more bit" flag (in both head and non-head fragments) indicate if there are more fragments to be processed ([0038]); which means that the "more bit" flag is interpreted as header information designated to another non-head fragment, wherein the non-head fragment later is applied a destination address thereof ([0045-48]). It would have been obvious to one of ordinary skill in the art at the time the invention was created to realize the benefit of having header information in non-head fragments as taught by Egevang to the fragment processing of Mankude since fragments may not be processed in order and by having header information the fragment processing manager may know where the fragments belong to.

Claims 6 and 12, applied to claims 1 and 9: Egevang discloses applying the determined destination address to the non-head fragments includes overwriting (modifying) a destination field of these non-head fragments with the determined destination address ([0048]).

Claims 10, 14 and 18, applied to claims 9, 13 and 17: Egevang discloses forwarding the non-head fragments having the determined destination address applied thereto ([0048]).

Claims 21 and 29, applied to claims 20 and 28: Egevang shows in fig. 1 a router *110* comprising packet fragmentation manager (PFM) may be interpreted as a switch network device ([0045]).

Claim 22, applied to claim 20: Egevang discloses a collection module *402* (entry point) and a communication module *408* (exit point) comprise software-based function ([0044] lines 11-13; [0048] lines 7-11).

Claim 24, applied to claim 20: Egevang discloses the network device processes the head fragment to determine the destination address ([0044-45]).

Claim 25, applied to claim 20: Egevang discloses a translation module *406* (another network device) the communication module *408* (exit point) to perform head fragment processing ([0047] lines 1-9).

Claim 26, applied to claim 20: Egevang discloses a translation module *406* (another storage unit) coupled to the communication module *408* (exit point) to store destination address ([0047]: NAT process obviously needs address storage).

Claim 27, applied to claim 20: Egevang discloses the router (network device) has software program to handle fragments ([0033]).

Claims 7, 16 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mankude et al (US 6795866 B1, Mankude) in view of Egevang (US 2003/0081605 A1) and Basso et al (US 7065086 B2, Basso), applied to claims 1, 20 and 28, and in further view of Iny (US 2002/0061030 A1).

Claims 7, 16 and 30, applied to claims 1, 20 and 28: Mankude, modified by Egevang and Basso, disclose the claimed invention yet may not have specifically mentioned addition of a routing tag to non-head fragments that includes the determined destination address. Iny mentions fragments being tagged with destination ID ([0020])

before the fragments are sent to their destinations. It would have been obvious to implement the step of tagging a destination address to a fragment as taught by Iny to the fragment forwarding process of Mankude, modified by Egevang, so that the fragments may be forwarded to a reachable destination while maintaining load balance.

Claims 8, 23 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mankude et al (US 6795866 B1, Mankude) in view of Egevang (US 2003/0081605 A1) and Basso et al (US 7065086 B2, Basso), applied to claims 1, 20 and 28, and in further view of Malagrino et al (US 6714985 B1, Malagrino).

Claims 8, 23 and 31, applied to claims 1, 20 and 28: Mankude, modified by Egevang and Basso, disclose the claimed invention yet may not have specifically mentioned the head fragment is processed according to at least one of layer 4 to layer 7 criteria. Malagrino discloses that non-last (e.g. including head) fragments are processed through higher layer (layers 4-7) operations (col. 4 lines 27-42). It would have been obvious to one of ordinary skill in the art at the time the invention was created to forward the head (or non-last) fragments for higher layers processing as taught by Malagrino and apply such process to the fragmentation manager of Mankude, modified by Egevang, to avoid inefficient use of memory due to the varying number of fragments at a switch and make it easier for hackers to obtain packet info (col. 3 lines 10-26 of Malagrino).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Chang et al, US 6731631 B1: a packet processor determines how to process the header portions of incoming packets and processing of the header portions by the packet processor includes determining the destination of a packet by utilizing a lookup address table, attaching an internal tag, which includes a destination vector, to the header portion of the packet, and then notifying the header queue of the completion of processing; the address lookup is done by accessing, via the SSRAM controller, an external address table stored in the external SSRAM wherein the SSRAM may also be used to store other necessary information.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xavier Wong whose telephone number is 571.270.1780. The examiner can normally be reached on Monday through Friday 8:30 am - 6:00 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571.272.3174. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866.217.9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571.272.1000.

/Xavier Szewai Wong/
x.s.w
30th January 2009

/Kevin C. Harper/
Primary Examiner, Art Unit 2416